9200113

# THE UNITED SHAMES OF AMERICA

Western Plant Breeders, Inc.

Colhereus, there has been presented to the

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, therefore, this certificate of plant variety protection is to grant unto the said applicant(s) and the successors, heirs or assigns of the said applicant(s) for the term of eighteen years from the date of this grant, subject to the payment of the required fees and periodic replenishment of viable basic seed of the variety in a public repository as provided by LAW, the right to exclude others from selling the variety, or offering it for sale, or reproducing it, importing it, or exporting it, or using it in producing a hybrid or different nety therefrom, to the extent provided by the Plant Variety Protection Act.

UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

#### BARLEY

'WestBred Medallion'

In Lestimony Watercot, I have hereunto set

my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this 29th day of July in the year of our Lord one thousand nine hundred and ninety-four.

Clive Eso Secretary of Agriculture

Attest: Landball Jand Commissioner Plant Variety Protection Office Public reporting burden for this collection of information is estimated to average 30 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Agriculture, Clearance Office, DIRM, Room 404-W, Washington, D.C. 20250; and to the Office of Management and Budget, Paperwork Reduction Project (OMB #0581-0055), Washington, 20250.

FORM APPROVED: OMB 0581-0055, Expires 1/31/91

U.S. DEPARTMENT OF AGRICULTURAL MARK	Application is required in order to		
APPLICATION FOR PLANT VARIETY (Instructions on		TION CERTIFICATE	determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).
NAME OF APPLICANT(S) (es il is to appear on the Certificate)	, <u></u>	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NO.	3. VARIETY NAME
Western Plant Breeders, In	c.	BFP-78-77	WestBred Medallion
4. ADDRESS (street and no. or R.F.D. no., city, state, and ZIP)		5 PHONE (Include area code)	FOR OFFICIAL USE ONLY
8111 Timberline Drive Bozeman, MT 59715		(406) 587-1218	F Date 1 March 5 1997
6. GENUS AND SPECIES NAME	7. FAMILY NAME (	(Botanicat)	Time
Hordeum vulgare	Grami	.neae	G AM P.M
8 CROP KIND NAME (Common Name)		9 DATE OF DETERMINATION	F Filing and Examination Fee.  E S 2/50, S Date.
Barley	·	Aug. 31, 1986	S Date
18. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGA	NIZATION (Corporation	on, partnership, association, etc.)	Phan, 5, 1992
Corporation  11. If INCORPORATED GIVE STATE OF INCORPORATION		12. DATE OF INCORPORATION	C Certificate Fee:
Arizona	•		V Date (11) 1 1004
13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO	SERVE IN THIS APP	Aug. 24, 1990 LICATION AND RECEIVE ALL PAPERS	o yay 6, 1911
Dr. Dale R. Clark or Craic 8111 Timberline Drive Bozeman, MT 59715	g Cook	PHONE finclude area co	(406) 587-1218
b. Exhibit B, Novelty Statement. c. Exhibit C, Objective Description of Variety d Exhibit D, Additional Description of Variety e Exhibit E, Statement of the Basis of Applicant's Ownersh f. Seed Sample (2,500 viable untreated seeds) Date Seed g Filing and Examination Fee (\$2,150) made payable to "	Sample mailed to F freasurer of the Uni	ted States.*	
15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SC Profection Act.)  X YES (# "YES." answer thems 16 and 17 be		E DNLY AS A CLASS OF CERTIFIED SEED? (S D (If "NO." skip to item 18 below)	See section 83(a) of the Plant Variety
16 DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS NUMBER OF GENERATIONS?  YES NO	70 17. IF 1	TES" TO ITEM 16, WHICH CLASSES OF PROD	UCTION BEYOND BREEDER SEED?
18 DID THE APPLICANT(S) PREVIOUSLY FILE FOR PROTECTION OF THE VA	RIETY IN THE U.S.?		
YES, "Harves," through Plant Variety Protection Act NO	Patent Act G		
19 HAS THE VARIETY BEEN RELEASED, USED, OFFERED FOR SALE, OR M	ARKETED IN THE US	S. OR OTHER COUNTRIES?	
VES (II "YES." give names of countries and dates)  NO			
20. The applicant(s) declare(s) that a viable sample of basic se request in accordance with such regulations as may be appl The undersigned applicant(s) is (are) the owner(s) of this uniform, and stable as required in section 41, and is entitle	icable, sexually reprodu d to protection un	nced novel plant variety, and believed der the provisions of section 42 of the	re(s) that the variety is distinct
Applicant(s) is (are) informed that false representation here	ein can jeopardize	protection and result in penalties.	·
SIGNATURE OF APPLICANT (Owner(s))  Wale R. Clark  SCHATURE OF APPLICANT (Owner(s))	Ban	ley Breeder	March 4, 1992
FORM CSSD-430 (5-89) Edition of FORM LS-470, 3-86, is obsolete	AS	A Breeder	man 4 1992 /

#### 14a. Origin and Breeding History

WestBred Medallion is a six-rowed, semi-dwarf, spring barley that was developed from the cross of Western Plant Breeders' variety "Gus" with a line designated "399". The line "399" was selected from the short strawed, six-rowed, male sterile population CCXXXII-76.

WestBred Medallion was selected as a single F2 plant at WPB's nursery near Phoenix, AZ in the spring of 1977. Seed from the F2 plant was planted to produce an F3 row near Conrad, MT in May of 1977. A single F3 plant was selected from the F3 row and seed from this plant 🛝 was used to plant an F4 plot near Phoenix, AZ in the fall of 1977. Twenty spikes from the F4 plot were selected in the spring of 1978, designated the experimental number BFP-78-77, and planted near Conrad, MT in the spring of 1978. Seed from uniform F5 rows was bulked and put into yield tests in Arizona and California in 1979. Successive generations of BFP-78-77 were grown in Arizona and California in 1980 and 1981, and in Montana, Idaho, Washington, Oregon, and Northern California from 1982 through 1988. Approximately 100 spikes were selected from the F12 bulk in 1986 and planted as head rows near Bozeman, MT in the spring of 1987. Uniform head rows were harvested individually and seed from each row was used to plant a family of eight plots near Phoenix, AZ in the fall of 1987. Uniform plots were harvested and bulked to produce Breeders seed. The Breeders seed was harvested the first week of May, 1988. This seed was used to plant 5 acres near Bozeman, MT in May of 1988. The resulting production was harvested as Foundation seed and designated "WestBred Medallion". Registered seed was produced in 1989 and Certified seed was produced in 1990. Certified seed of WestBred Medallion was first offered to growers in April of 1991.

WestBred Medallion is a stable and uniform variety in agronomic appearance and performance across several generations and growing conditions. Agronomic data to support this stability are presented in Tables 1 through 4.

#### 14b. Novelty statement

WestBred Medallion (experimental # BFP-78-77) is a semi-dwarf six-rowed, spring barley that is most similar to the variety Gus. However, WestBred Medallion is 2 to 3 inches taller than Gus ( Table 2. T-value = 3.98 with 7 d.f., p < .01) and the heading date of WestBred Medallion is approximately 3 days later than Gus ( Table 3. T-value = 8.02 with 2 d.f., p < .02; and Table 4. T-value = 5.47 with 4 d.f., p < .01)..

The above comparisons along with the complete objective description (14c.) show WestBred Medallion to be a novel variety of spring barley.

#### 14e. Statement of ownership

Western Plant Breeders, Inc. is the employer of the breeders and rightfully therefore the owner of "WestBred Medallion".

FORM GR-470-5 (11-1-72)

## UNITED STATES DEPARTMENT OF AGRICULTURE AGRICULTURAL MARKETING SERVICE GRAIN DIVISION HYATTSVILLE, MARYLAND 20782

EXHIBIT C (Barley)

#### OBJECTIVE DESCRIPTION OF VARIETY INSTRUCTIONS: See Reverse. BARLEY (HORDEUM VULGARE)

INSTRUCTIONS: See Reverse. BARLEY (HORDEUM VULGARE)	
NAME OF APPLICANT(S)	FOR OFFICIAL USE ONLY
Western Plant Breeders ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code)	PVPO NUMBER 9200113
<b>.</b>	VARIETY NAME OR TEMPORARY
8111 Timberline Drive Bozeman, MT 59715	WestRred Medallion
Place a zero in first box (i.e. 1919)	
Place a zero in first box (i.e. 089 or 09) when number is either 99 or less or 1. GROWTH HABIT:	9 or less.
1 1-SPEING 0-546W T-7-	
Early Growth:	1 = PROSTRATE 2 = SEMIPROSTRATE 3 = ERECT
3 1 = EARLY (California Mariout) 2 = MIDSEASON (Betzes) 3 = LATE (Frontier)	
No. of days Earlier than 1 1 = BETZES 2 = CALIFORNIA MARIOUT	3 = CONQUEST 4 = DICKSON
13 No. of days Later than 2 5 = PIROLINE 6 = PRIMUS 7 = UNITAN	
3, PLANT HEIGHT (From soil level to top of head):	
1 1 = SEMIDWARF 2 = SHORT (California Mariout) 3 = MEDIUM TALL (Betzes)	4 = TALL (Conquest)
0 0 Cm. Shorter than 2 1 = BETZES 2 = CALIFORNIA MARIOUT 5 = PIROLINE 6 = PRIMUS 7 = UNITAN	3 = CONQUEST 4 = DICKSON
x x-none that are listed.	
4. STEM: 1 = 0 - 3 cm, 2 = 3 - 10 cm.	
Exertion (Flag to spike at maturity): 3 = 10 - 15 cm.	1 = ABSENT 2 = PRESENT
0 6 NO. OF NODES (Originating from node above ground)	
2 Collar Shape: 1 = CLOSED 2 = V-SHAPED 3 = OPEN 1 Shape of Neck:  5. LEAF:	1 = STRAIGHT 2 = SNAKY 3 = OTHER (Specify)
Basal leaf sheath (seedling): 1 = GLABROUS 2 = PUBESCENT 2 Position of flag leaf	1 = DROOPING (at boot stage): 2 = UPRIGHT
2 Waxiness: 1 = ABSENT (Glossy) 2 = SLIGHTLY WAXY 2 1 MM. WIDTH (F	irst leaf below flag leaf)
2 6 CM. LENGTH (First leaf below flag leaf) 2 Anthocyanin in leaf	sheath: 1 = ABSENT 2 = PRESENT
S. HEAD:	The state of the s
	.AX 2 = ERECT (Not dense) ERECT (Dense)
	ABSENT (Giossy) 2 = SLIGHTLY WAXY
2 Lateral Kernels Overlap: 1 = NONE 2 = AT TIP 3 = 1/4 - 1/2 OF HEAD 3 Rachis (Hair on edge	): 1= LACKING 2= FEW 3= COVERED
1 = 1/3 OF LEMMA 2 = 4/2 OF LEMMA	
2 Hairs: 1 = NONE	2 = SHORT 3 = LONG
Hair covering: 1 = NONE 2 = RESTRICTED TO MIDDLE 3 = CONFINED TO BANK	4 = COMPLETELY COVERED
2 Awns: 1 = LESS THAN EQUAL TO LENGTH OF GLUMES 2 = EQUAL TO LENGTH OF GLUMES 3 = MORE THAN EQUAL TO LENGTH OF GLUMES	OF GLUMES
3 Awn Surface: 1 = SMOOTH 2 = SEMISMOOTH 3 = ROUGH	4

FÖRM GR-470-5 (Rever	rse)	7200113
8. LEMMA:	<i>M</i>	
5 Awn: 3 = S	AWNLESS 2 = AWNLETS ON CENTRAL R SHORT ON CENTRAL ROWS, AWNLETS ON I LONG (longer than spike) 6 = HOODED	OWS AWNLESS ON LATERAL ROWS  LATERAL ROWS 4 = SHORT (less than equal to length of spike)
2 Awn Surface: 0	) = AWNLESS 1 = SMOOTH 2 = SEMIS	MOOTH 3 = ROUGH
2 Teeth: 1 = AB	SENT 2 = FEW 3 = NUMEROUS	Hair: 1 = ABSENT 2 = PRESENT
L Anament bace	1 = DEPRESSION 2 = SLIGHT CREASE 3 = TRANSVERSE CREASE	2 Rachilla Hairs: 1 = SHORT 2 = LONG
9. STIGMA:		
2 Hairs: 1 = FEV	N 2 = MANY	
10. SEED:		
2 Type: 1 = NA	KED 2 = COVERED	Hairs on Ventral Furrow: 1 = ABSENT 2 = PRESENT
	HORT (8.0 mm.) 2 = SHORT TO MIDLONG IIDLONG TO LONG (9.0 - 10.5 mm.)	3 = MIDLONG (8.5 - 9.5 mm.) 5 = LONG (10.0 mm.)
4 Wrinkling of hull	: 1 = NAKED 2 = SLIGHTLY WRINKLE	D _3 = SEMIWRINKLED 4 = WRINKLED
2 Aleurone Color:	1 = COLORLESS (White or Yellow) 2 = 1	BLUE
0 1 PERCENT A	BORTIVE	4 5 GMS, PER 1000 SEEDS
11. DISEASE: (0 = Not	Tested, 1 = Susceptible, 2 = Resistant)	
0 SEPTORIA	2 NET BLOTCH	0 SPOT BLOTCH 1 POWDERY MILDEW
1 LOOSE SMUT	1 BACTERIAL BLIGHT	0 COVERED SMUT 1 FALSE LOOSE SMUT
0 STEM RUST	1 LEAF RUST	0 scab 2 scald
0 AY	0 BSMV	2 BYDV 0 OTHER (Specify)
12. INSECT: (0 = Not to	ested, 1 = Susceptible 2 = Resistant)	
0 GREEN BUG	1 ENGLISH GRAIN APHID	0 CHINCH BUG 0 ARMYWORM
0 GRASS HOPPERS	0 CERIAL LEAF BETTLE	OTHER (Specify)
HESSIAN FLY RA	ACES O GP O A	О <sub>в</sub> О с
-	0 D 0 E	0 F 0 G
13. CHEMICAL (0 = Not	Tested, 1 = Susceptible, 2 = Resistant)	•
0 DDT	O OTHER (Specify)	
14. INDICATE WHICH V	ARIETY MOST CLOSELY RESEMBLES THA	T SUBMITTED:
CHARACTER	NAME OF VARIETY	CHARACTER NAME OF VARIETY
Plant tillering	Gus	Seed size Gus
Leaf size	Gus	Coleoptife elongation GUS
Leaf color	Gus	Seedling pigmentation Gus
Leaf carriage	Gus	
REFERENCES: The fall	louine multi-seion	

The following publications may be used as a reference aid for the standardization of character descriptions and terms used in this form:

- Wiebe, G. A., and D. A. Reid, 1961, Classification of Barley Varieties Grown in the United States and Canada in 1958, Technical Bulletin No. 1224, U.S. Dept. of Agriculture.
   Reid, D. A., and G. A. Wiebe, 1968, Barley: Origin, Botany, Culture, Winter Hardiness, Genetics, Utilization, Pests, Agriculture Handbook No. 338, U.S. Dept. of Agriculture. pp. 61-84.
   Malting Barley Improvement Association, Milwaukee, Wisconsin, 1971, Barley Variety Dictionary.

COLOR: Nickerson's or any recognized color fan may be used to determine color of the described variety.

Table 2. Plant height in inches of WestBred Medallion and currenty grown cultivars in Western Plant Breeders' yield trials.

Year	Location	WestBred Medallion	Gus	WestBred Gustoe	WestBred 501	Steptoe
1005		0.77		~ 4		
1985	Bozeman, MT	27	24	24	24	30
	Steptoe, WA	29	28	22	27	34
	Yakima, WA	28	27	26	27	34
1986	Bozeman, MT	28	25	23	24	31
	Burley, ID	30	24	23	25	32
	Moses Lake, WA	24	22	19	21	27
	Yakima, WA	30	29	28	29	37
•	Steptoe, WA	26	24	18		30
1987	Bozeman, MT	26		21	23	32
	Burley, ID	28		24	25	38
	Blackfoot, ID	31		23	25	30
1988	Bozeman, MT	26		20	17	26
	Burley, ID	28		22	24	35
	Blackfoot, ID	28		24	23	29
÷	Moses Lake, WA	<u>28</u>		<u>27</u>	<u>26</u>	<u>31</u>
	14 location mean	27.9		23.3	24.3	31.9
	8 location mean	27.8	25.3	22.8	•••	31.9

T-test comparing 'WestBred Medallion' vs 'Gus'.

T-value = 3.98 with 7 d.f.

P-value = p < .01

Table 3. Heading date of WestBred Medallion and currenty grown cultivars in Western Plant Breeders' yield trials.

Year	Location		WestBred Medallion	Gus	WestBred Gustoe	WestBred 501	Steptoe
1983	Bozeman,	MT	7/09	7/06	7/10	7/05	7/02
1984	Bozeman,	MT	7/14	7/12	7/14	7/12	7/09
1985	Bozeman,	MT	7/08	7/05	7/07	7/05	6/30
1987	Bozeman,	MT	7/04	-	7/05	7/02	6/29
1988	Bozeman,	mt	7/05	-	7/05	7/03	6/30

T-test comparing 'WestBred Medallion' vs 'Gus'

T-value = 8.02 with 2 d.f.

P-value = p < .02

Table 4. Heading dates of WestBred Medallion and Gus barley grown in Montana State University trials in 1981.

Location	WestBred Medallion	Gus
Sidney, MT (irr.)	6/15	6/12
Kalispell, MT (irr.)	6/27	6/24
Huntley, MT (irr.)	6/10	6/05
Bozeman, MT (irr.)	7/03	7/01
Bozeman, MT (dry.)	7/10	7/08
Average	6/25	6/22

T-test comparing 'WestBred Medallion' vs 'Gus'.

T-value = 5.47 with 4 d.f.

P-value = p < .01

Table 1. Yields in pounds per acre of WestBred Medallion and currenty grown cultivars in Western Plant Breeders' yield trials.

		WestBred		WestBred	WestBred	
Year	Location	Medallion	Gus	Gustoe	501	Stepto
	***					
1985	Bozeman, MT	7830	6786	7134	6264	7656
	Burley, ID	5452	5568	5104	5510	5916
	Yakima, WA	<u>7680</u>	<u>7475</u>	<u>7680</u>	<u>7168</u>	7219
	mean	6987	6610	6639	6314	6930
1986	Bozeman, MT	8178	7366	7366	7104	0004
2000	Burley, ID	7020	6588	6804	7134 6426	8294
	Moses Lake, WA	7830	5958	6960	5452	7668 8178
	Yakima, WA	653 <u>4</u>	<u>5940</u>	<u>5616</u>	6156	6534
a*	mean	7391	6460		<u></u>	
	mean	1331	6463	6687	6292	7669
1987	Bozeman, MT	7418		6640	6164	7643
	Burley, ID	7043		7630	6735	6939
	Blackfoot, ID	<u>7113</u>		<u>7793</u>	<u>7058</u>	<u>6596</u>
	mean	7191		7354	6652	7059
1000 84	Dogge Mm	5000				
1300 MGV.	Bozeman, MT Burley, ID	5998		4950	4556	5508
	Blackfoot, ID	7134 5869		7018	6859	7598
	Moses Lake, WA	8038		5651 7821	5554 7424	5324 8090
	mean	6760		6360	6098	6630
1000 DB	D 4400					
1988 PE	Bozeman, MT	6048		4752	4806	5481
	Burley, ID Blackfoot, ID	6723		6588	5994	7155
	Moses Lake, WA	8663 <u>8756</u>		5481 <u>8140</u>	5165 7245	5821
		<u>5,50</u>		0140	<u>7245</u>	<u>7885</u>
	mean	7548		6240	5803	6586
		<del>*************************************</del>		<del></del>		
. *	4 year average	7175		6656	6232	6975

Table 2. Plant height in inches of WestBred Medallion and currenty grown cultivars in Western Plant Breeders' yield trials.

Year	Location	WestBred Medallion	Gus	WestBred Gustoe	WestBred 501	Steptoe
1985	Bozeman, MT	27	24	24	24	30
	Steptoe, WA	29	28	22	27	34
	Yakima, WA	28	27	26	27	34 34
1986	Bozeman, MT	28	25	23	24	31
	Burley, ID	30	24	23	25	32
	Moses Lake, WA	24	22	19	21	27
	Yakima, WA	30	29	28	29	37
	Steptoe, WA	26	24	18		30
1987	Bozeman, MT	26		21	23	32
	Burley, ID	28		24	25	38
•	Blackfoot, ID	31		23	25	30
1988	Bozeman, MT	26		20	17	26
•	Burley, ID	28		22	24	35
	Blackfoot, ID	28		24	23	2 <del>9</del>
	Moses Lake, WA	28		<u>27</u>	<u>26</u>	<u>31</u>
	14 location mean	27.9		23.3	24.3	31.9
	8 location mean	27.8	25.3	22.8	. 1 - <del>_</del>	31.9

Table 3. Heading date of WestBred Medallion and currenty grown cultivars in Western Plant Breeders' yield trials.

Year	Location		WestBred Medallion	Gus	WestBred Gustoe	WestBred 501	Steptoe
1983	Bozeman, M	1T	7/09	7/06	7/10	7/05	7/02
1984	Bozeman, M	IT	7/14	7/12	7/14	7/12	7/09
1985	Bozeman, M	iT ,	7/08	7/05	7/07	7/05	6/30
1987	Bozeman, M	IT	7/04	· · · · · ·	7/05	7/02	6/29
1988	Bozeman, M	ıT	7/05	<u>-</u>	7/05	7/03	6/30

Table 4. Heading dates of WestBred Medallion and Gus barley grown in Montana State University trials in 1981.

Location	WestBred Medallion	Gus
Sidney, MT (irr.)	6/15	6/12
Kalispell, MT (irr.)	6/27	6/24
Huntley, MT (irr.)	6/10	6/05
Bozeman, MT (irr.)	7/03	7/01
Bozeman, MT (dry.)	7/10	7/08
Average	6/25	6/22